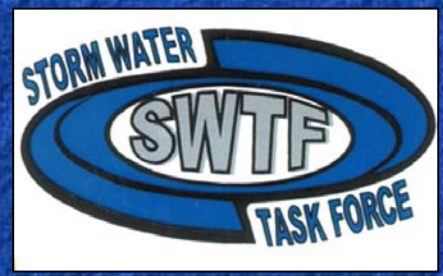
Inspecting for Water Pollution Control on Construction Sites

Who Are We?

- Part of Caltrans' Overall Water Quality Program
  - Testing, Sampling, Monitoring, GIS, BMP Design, Pilot Studies for Construction, Maintenance, Operations of Highways
- Storm Water Task Force
  - 5,000+ Compliance Inspections …All Caltrans Districts
  - 2000+ Trained
  - 400+ SWPPPs Prepared/Reviewed
  - Specifications/Manuals Prepared
- Your Facilitator
- Audience Introductions



Why Are You Here?

- To Learn About Past and Current Regulatory Issues
- To Comply With Permit Requirements for Training.
- To Review Caltrans' General Requirements for Water Pollution Control on Construction Sites
- To Be Introduced to the New Specifications and Manuals

What You Will Learn

- Why Water Pollution Should be Prevented
- Monetary Fines are Real
- Which Documents Govern on Caltrans Construction Sites
- Correct and Incorrect BMP Installations
- How to Prepare for and Conduct WPC Inspections
- What to Expect and Do During Regulatory Inspections
- How to Handle the Paperwork

Glossary

- **NPDES** - National Pollutant Discharge Elimination System
- **SWMP** - Storm Water Management Plan
- **SWPPP** - Storm Water Pollution Prevention Plan
- **WPCP** - Water Pollution Control Program
- **BMP** - Best Management Practice
- **EPA** - Environmental Protection Agency
- **SWRCB** - State Water Resources Control Board
- **RWQCB** - Regional Water Quality Control Board
- **NRDC** -Natural Resources Defense Council
- **CSWC** – Construction Storm Water Coordinator
- **SWTF** - Storm Water Task Force

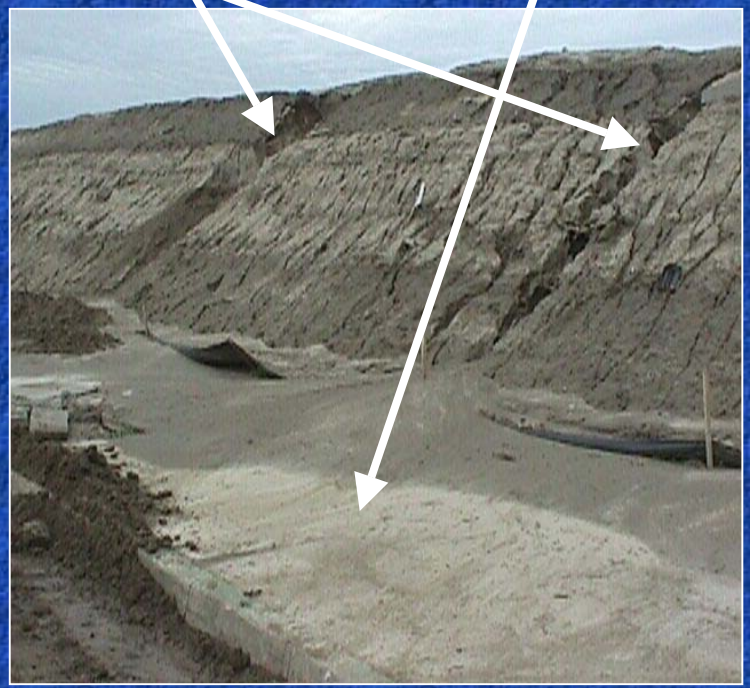
Introduction

- **Course Highlights**
  - Introduction
  - The Law
  - Recent Fines
  - Permits, Specs and Manuals
  - Construction Site BMPs
  - Inspection Procedures
  - Communication
  - Documentation

Introduction

Construction Site Pollutants

Erosion and Sedimentation



Construction Wastes

Introduction

- One gallon of oil has the potential to contaminate up to one million gallons of water

StormWater/CleanWater protection program

Introduction

- Forty percent of all U.S. waters are not fishable or swimmable, according to the U.S. EPA

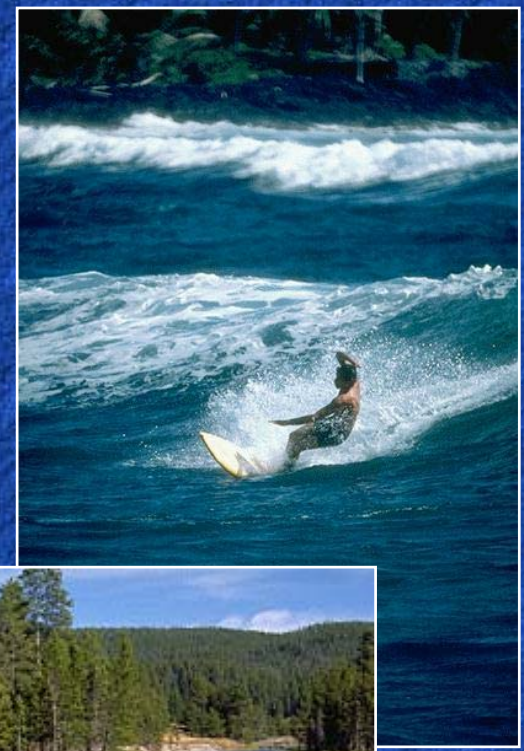
- "Even a partial accounting shows that hundreds of millions of dollars are lost each year….due to urban stormwater pollution"

Natural Resources Defense Council

Introduction

Water Pollution Prevention

- Overall Purpose
  - ⇒ To Reduce Potential Environmental and Human Health Impacts
  - ⇒ Comply with State and Federal Laws



Introduction

- Sediment, the most common pollutant washed from construction sites, clogs the gills of fish, blocks light transmission and increases ocean water temperature …..harming aquatic life, and disturbing the food chain

Introduction

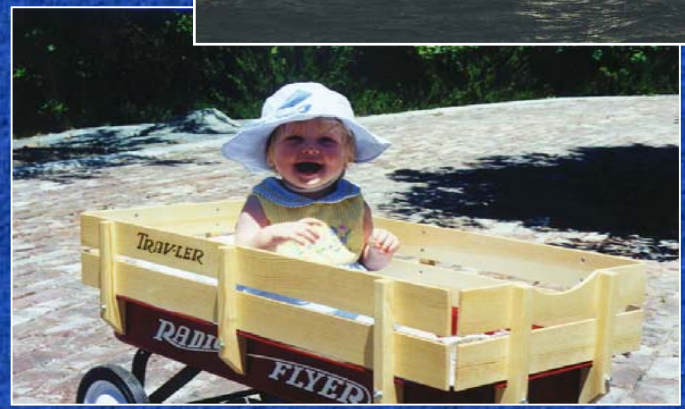
- Construction site erosion can be 10 to 1,000 times greater than nature's erosion process

Ohio Department of Transportation

Introduction

Construction Site Water Pollution Prevention

- Minimize the Potential Impact that Construction Activities may have on Water Bodies and Protect their Beneficial Uses for Future Generations



The Law

- **Course Highlights**
  - Introduction
  - **The Law**
  - Recent Fines
  - Permits, Specs and Manuals
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  - Communication
  - Documentation

The Law

- 1972 Federal Clean Water Act (CWA)
  - ⇒ Amend to Prohibit Any Discharge of Pollutants from a Point Source
- 1987 Amendments to the CWA
  - ⇒ Added Section 402(p) Establishing the Framework for Regulations Regarding Municipal and Industrial Discharges
- 1990 EPA Published Final Regulations
  - ⇒ Established Permit Requirements for Storm Water Discharges Associated with Industrial (Including Construction) Activities
- 1992 California's General Permit was Adopted
  - ⇒ Established Requirements for Discharges Associated with Construction Activities
- 1999 Caltrans NPDES Permit was issued – 03 Permit
- California's Porter Cologne Water Quality Control Act

Who Enforces These Laws?

- EPA
- SWRCB / RWQCB
- Other Agencies

- **Private Citizens**
  - ⇒ NRDC
  - ⇒ Baykeepers
  - ⇒ Other Watchdog
  - ⇒ Groups

Recent Fines

- **Course Highlights**
  - Introduction
  - The Law
  - **Recent Fines**
  - Permits, Specs and Manuals
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What If We Don't Comply?

- Fines to $27,500 Per Day – Per CWA
- Fines to $15,000 Per Day and $20 a gallon – Per Porter Cologne Act
- Current Regulatory Atmosphere
  - ⇒ "The Learning Curve is Over"

Violation and Order for Compliance 1998 District 12

USEPA Region 9 Cited Contractor and Agency as Follows:

- "…excessive amounts of sediment to the storm drain…"

Violation and Order for Compliance 1998 District 7

- "…excessive amounts of sediment to the storm drain…"
- "…discharge of false work and miscellaneous construction debris to ...Creek and ... River."
- " A sheen of fuel floating on the storm water ... 40 feet from a drain inlet."

Violation and Order for Compliance 2000 County of Sacramento

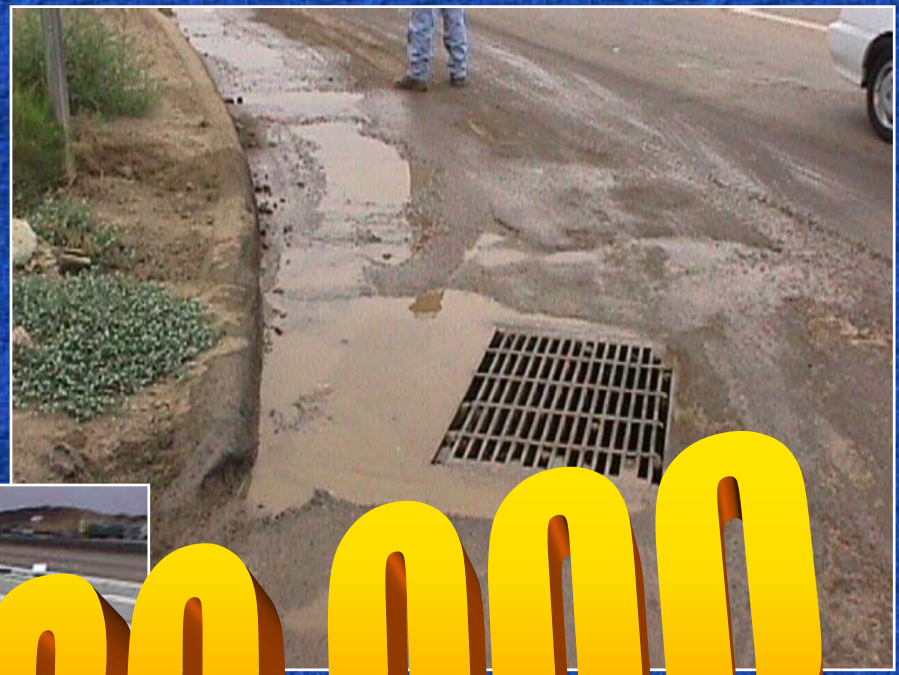
- Lower Laguna Bypass Roadway Construction
  - ⇒ “Violated permit for discharges of sediment”
  - ⇒ “Failed to Develop a SWPPP”
- County waived the appeal and paid the penalty

Violation and Order for Compliance 2000 Home Builder…Redding

- "No effective erosion control and minimal sediment control measures…."
- Notes:
  - EPA visited the site in 1998 and 1999
  - RWQCB issued two prior violation notices that went unheeded

Violation and Order for Compliance 1998 District 11

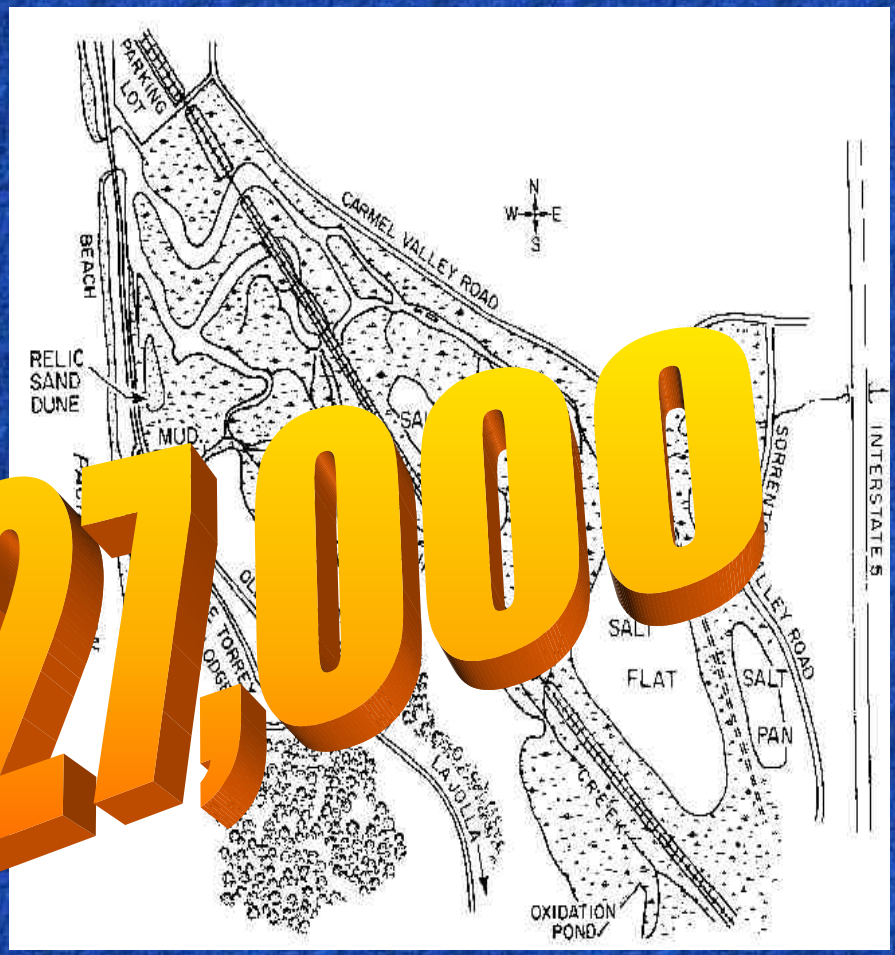
- "..sloppy runoff-control practices at Caltrans construction sites, drainage facilities and maintenance yards"
  San Diego Baykeeper



$430,000

Violation and Order for Compliance 2000
City of San Diego

- "Failing to curb erosion along a dirt road above the Los Penasquitos Lagoon"



$527,000

Permits, Specifications, and Manuals

- **Course Highlights**
  - Introduction
  - The Law
  - Recent Fines
  - **Permits, Specs and Manuals**
  - Construction Site BMPs
  - Inspection Procedures
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Permits

- General Construction Permit CAS000002 - The ‘02 permit
- Caltrans NPDES Permit CAS000003 - The ‘03 permit

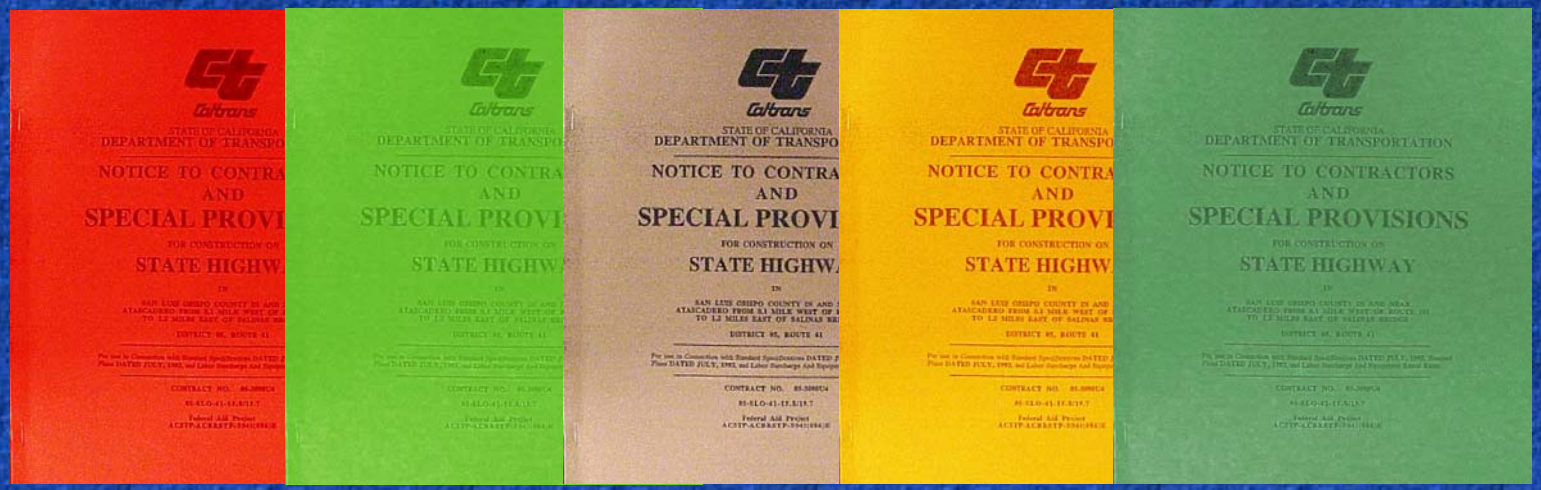
  - The 02 Permit was amended in 2001 to include monitoring
  - The 03 Permit requires that Caltrans’ construction program complies with the General Construction Activity Permit for construction sites that disturb 5 acres or more
  - Both permits can be viewed and downloaded from the State Water Resources Control Board website, www.swrcb.ca.gov

Specifications

- Caltrans Standard Specifications, Section 7-1.01G
  - Requires contractors to prepare and implement a program to control water pollution effectively during the construction of **all** projects.
  - SWPPP/WPCP and BMPs must meet requirements of this section
  - Key Points
    - 70,000 m^2 (17 acres) rule
    - Scheduling
- Sections 10,16,18, and 20

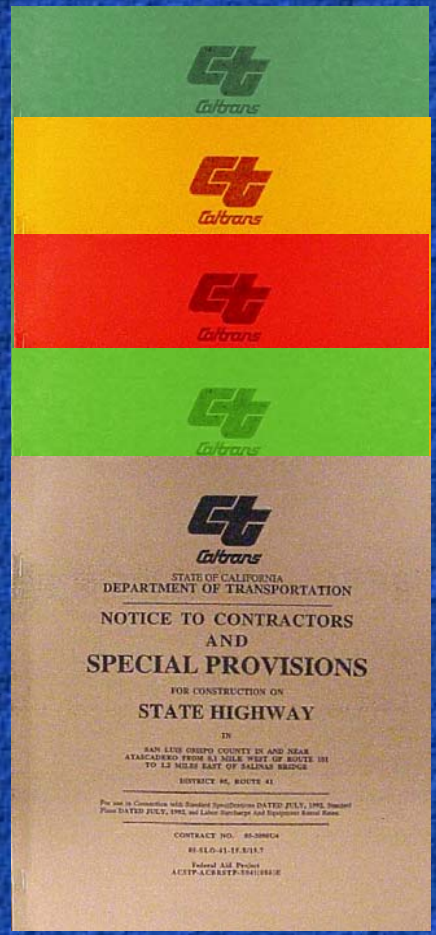
Contract Special Provisions

- **Contract Special Provisions - Section 10**
  - ⇒ Issued to satisfy the NPDES Permit requirements
  - ⇒ Defines water pollution control requirements



Contract Special Provisions

- **Contents of Water Pollution Control Section**
  - ⇒ Identifies plan required (SWPPP or WPCP)
  - ⇒ Statewide or Local Permit, Other Agency Permits
  - ⇒ Identifies Caltrans Storm Water Quality Handbooks – 1997 or 2000

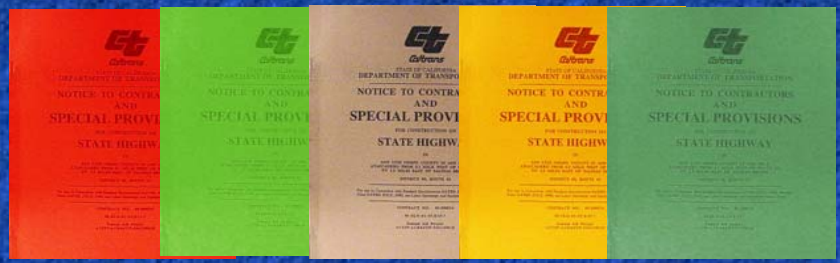


Contract Special Provisions

- **Contents of Water Pollution Control Section (Cont.)**
  - ⇒ The SWPPP/WPCP contents and approval process
  - ⇒ Additional required BMPs
  - ⇒ Identifies cost breakdown requirements
  - ⇒ Identifies Permanent Control Measures
  - ⇒ Designation of a WPC Manager (New)

Contract Special Provisions

- **Contents of Water Pollution Control Section (Cont.)**
  - ⇒ Defines active and non-active Disturbed Soil Areas (DSAs)
  - ⇒ Defines the rainy and non-rainy seasons
  - ⇒ Defines maximum active DSAs during the rainy season – usually 5 acres
  - ⇒ Rainy season implementation plan (New)



Contract Special Provisions

- **Contents of Water Pollution Control Section (Cont.)**
  - ⇒ Inspection and maintenance requirements
  - ⇒ Move-In/Out (Permanent Erosion Control - New)
  - ⇒ Maintenance cost sharing on some BMPs (New)
  - ⇒ Progress Payments / Retention
  - ⇒ Runoff Monitoring (New)

Manuals

- Caltrans Storm Water Quality Handbooks
  - ⇒ Project Planning and Design Guide
  - ⇒ SWPPP / WPCP Preparation Manual
  - ⇒ Construction Site BMPs Manual
    - 1997 Contractors Guide

Get Manuals online at
http://www.dot.ca.gov/hq/construc/stormwater.html
or hard copies are available from Caltrans Publications

- Revised Construction Manual
- New BMP Field Guidance Manual
- New Dewatering Guide

Manuals

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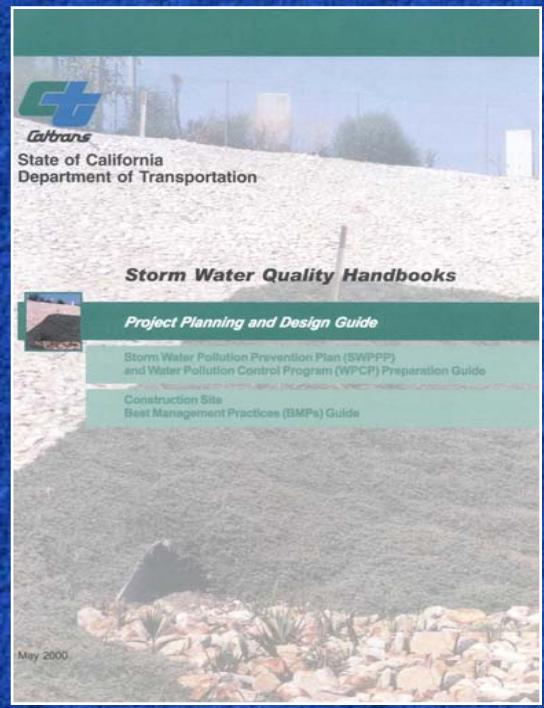

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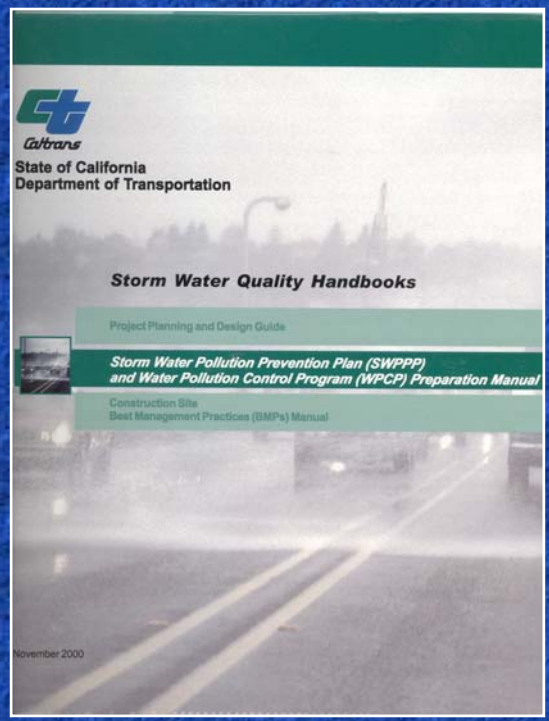

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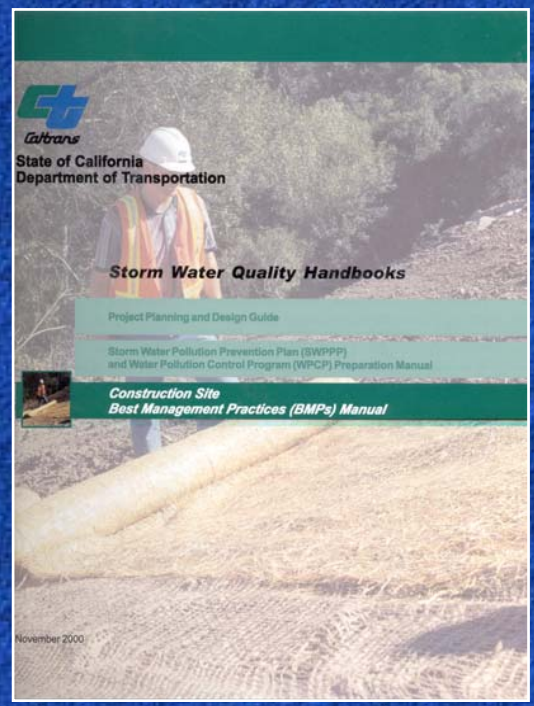
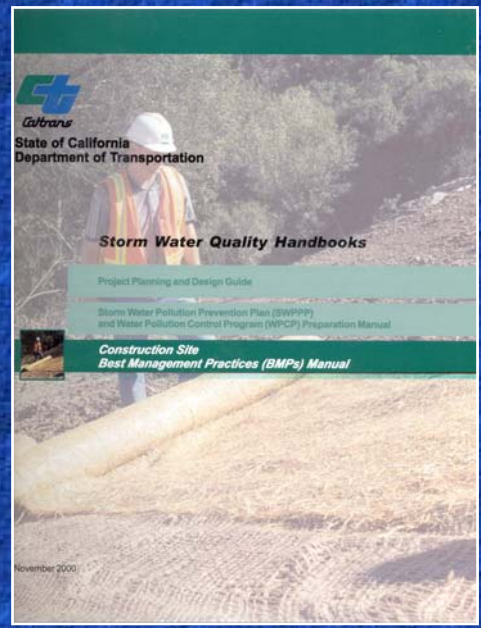


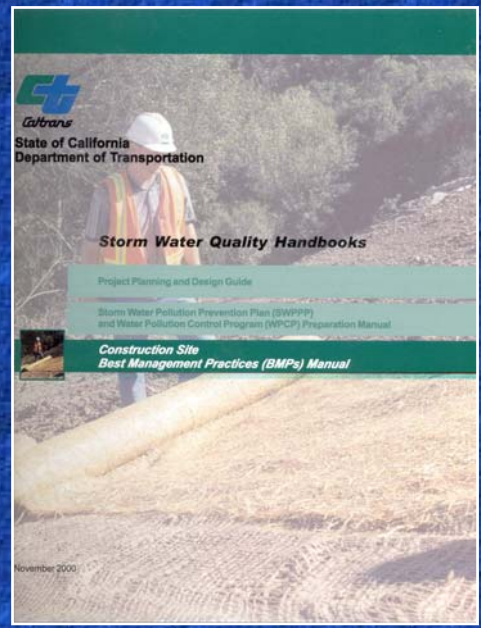
Manuals

- Construction Site BMPs Manual
  - ⇒ Guidelines for the selection and implementation of construction site BMPs
  - ⇒ Major changes compared to 1997 Handbooks
    - Area requirements/Tables
    - Fiber rolls
    - Stockpile management
    - Entrances / exits
    - Dewatering



Manuals

- Construction Site BMPs Manual
  - Major changes compared to 1997 Handbooks (cont)
    - New BMPs
    - New # system
    - Dropped BMPs
    - Revisions to soil stabilizers
    - Street sweeping
    - Gravel bag berm



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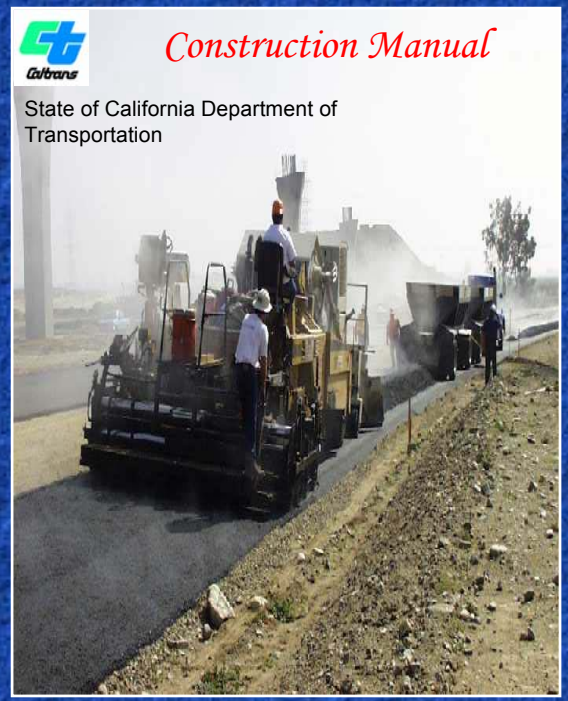

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  - ⇒ Construction Site BMPs Manual
- Revised Construction Manual
- New BMP Field Guidance Manual (in development)
- New Dewatering Guide (in development)

Manuals

- BMP Field Guidance Manual
  - ⇒ “Tool Box” for field personnel
  - ⇒ Principles of Erosion and Sediment Control
  - ⇒ Trouble Shooting Guide
  - ⇒ BMP Selection Installation and Maintenance

Manuals

- Caltrans Storm Water Quality Handbooks
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Who Wants To Be A Millionaire?

Millionaire Review Question #1

What agency has the authority to enforce the Clean Water Act in California?

A) RWQCB

B) Dept of Fish and Game

C) EPA

D) A, B & C

Millionaire Review Question #2

Construction site erosion can be how many times greater than nature's erosion process?

a) 10 - 100

b) 10 - 1,000

c) Mach 2

d) 100 - 10,000

Millionaire Review Question #3

In the Standard Specifications which section Requires contractors to prepare and implement a program to control water pollution?

a) 16-2.01H

b) 20-1.09P

c) 10-01.10A

d) 7-1.01G

Millionaire Review Question #4

***Project Planning and Design Guide*, and *SWPPP / WPCP Preparation Manual* are two of the three new CT Storm Water Quality Handbooks. What is the other one?**

a) Construction Manual

b) Construction Site BMP Manual

c) Construction Site ESC Manual

d) ESC Practices Manual

Millionaire Review Question #5

According to the *StormWater/CleanWater Protection Program:*

One gallon of oil has the potential to contaminate up to how many gallons of water?

a) 100,000

b) 1.5 million

c) 1 million

d) 500,000

Millionaire Review Question #6

Water pollution control requirements are found in this section of the Special Provisions?

a) 16

b) 18

c) 10

d) 5

Video

- **Hold on to your dirt**

Construction Site Best Management Practices

- **Course Highlights**
  - Introduction
  - The Law
  - Recent Fines
  - Permits, Specs and Manuals
  - **Construction Site BMPs**
  - Inspection Procedures
  - Communication
  - Documentation

Construction Site Best Management Practices

- **Section Highlights**
  - ⇒ BMP Installation
  - ⇒ Maintenance of BMPs
  - ⇒ Missing and Improperly Implemented BMPs

Construction Site Best Management Practices

- **BMP defined – Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution**

BMP Installation

BMP Categories

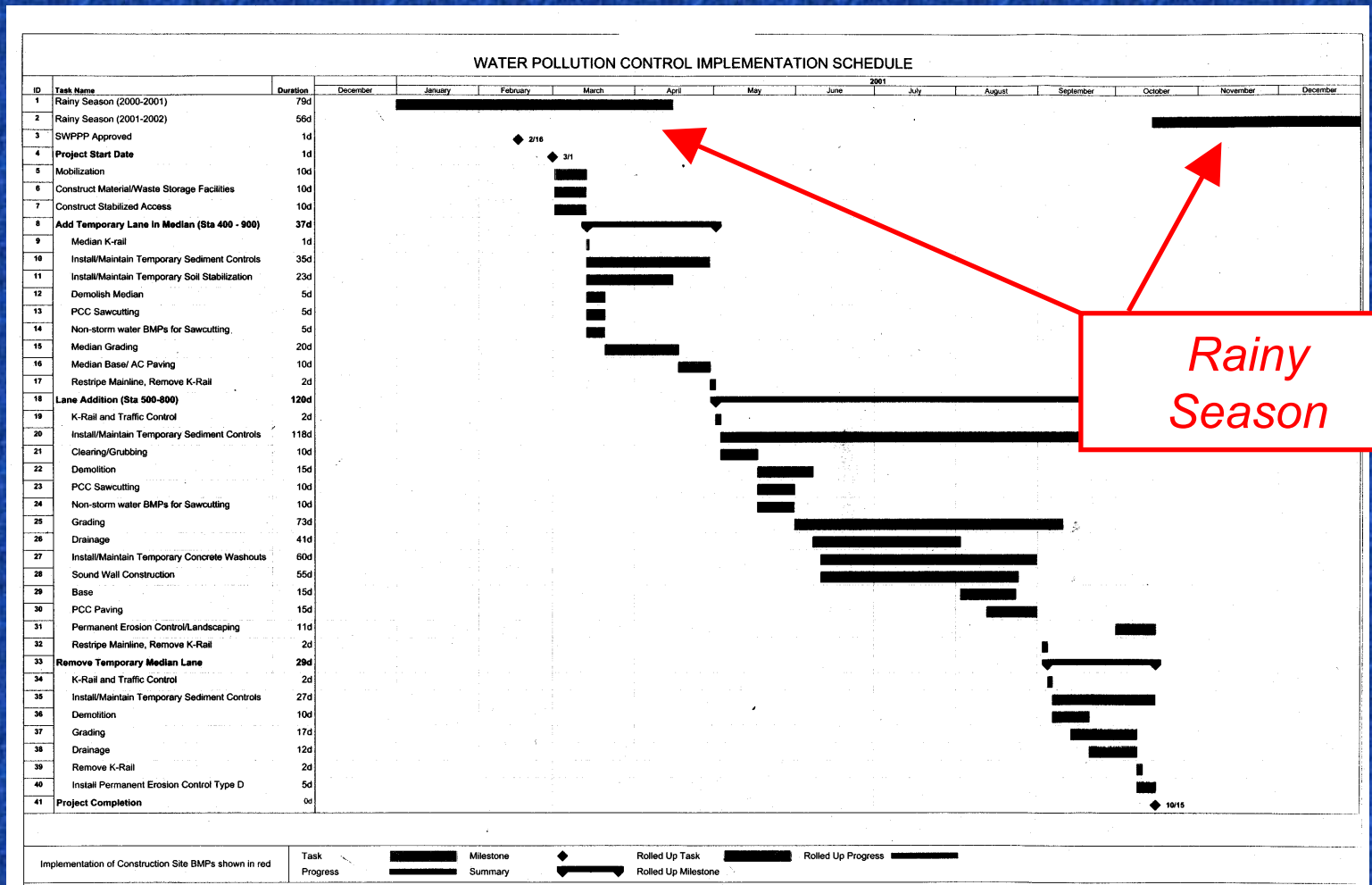
- Temporary Soil Stabilization
- Temporary Sediment Control
- Wind Erosion Control
- Tracking Control
- Non-Storm Water Management
- Waste Management and Materials Pollution Control

Temporary Soil Stabilization

ID	BMP Name
SS-1	Scheduling
SS-2	Preservation of Existing Vegetation
SS-3	Hydraulic Mulch
SS-4	Hydroseeding
SS-5	Soil Binders
SS-6	Straw Mulch
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats
SS-8	Wood Mulching
SS-9	Earth Dikes/Drainage Swales & Lined Ditches
SS-10	Outlet Protection/Velocity Dissipation Devices
SS-11	Slope Drains

BMP Use - Soil Stabilization SS-1 Scheduling

Example of Graphical Schedule



BMP Installation - Soil Stabilization SS-3 Hydraulic Mulch

Hydraulically applied paper mulch

Caltrans Requirements

- Mulch must be approved by RE
- Prior to application, roughen embankment and fill areas
- Most types need 24 hours to dry before rainfall occurs
- Application rates per SS3 or manufacturers recommendation

BMP Installation - Soil Stabilization SS-4 Hydroseeding

Hydroseeded slopes show vegetation growth

Caltrans Requirements

- Seed mix must comply with the Standard Specifications and Special Provisions
- Hydroseeding mixture requires approval by the Landscape Architect and DSWC
- Prior to application, roughen embankment and fill areas
- Steep slopes are difficult to protect with temporary seeding

BMP Installation - Soil Stabilization SS-4 Hydroseeding

Unstabilized slope vs. Stabilized slope

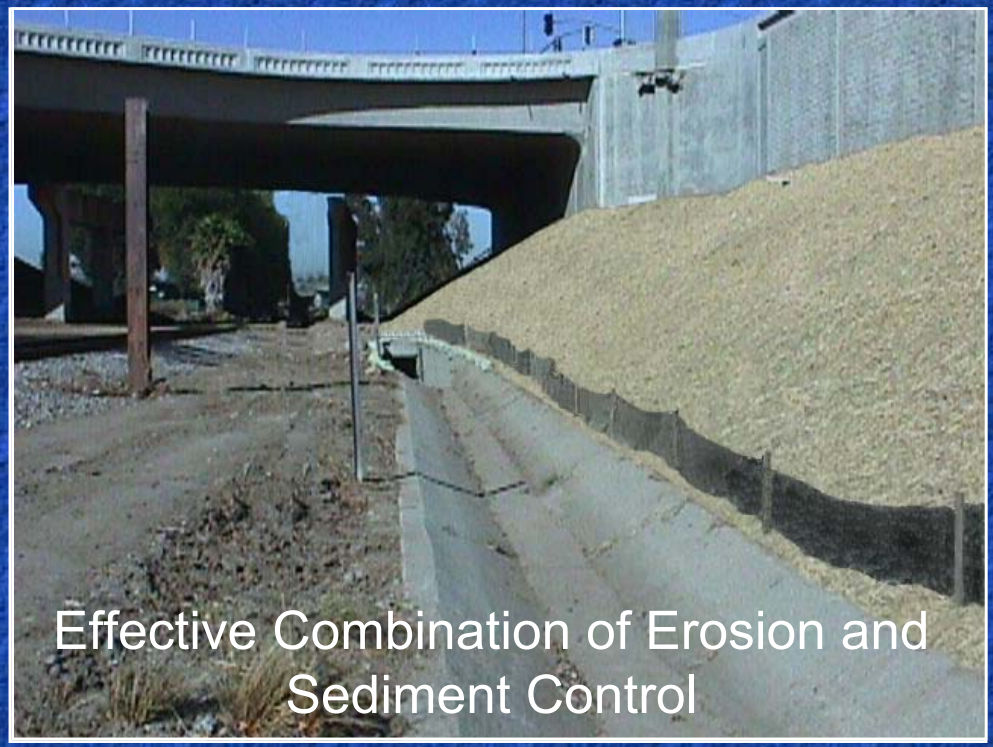
BMP Installation - Soil Stabilization SS-5
Soil Binders

Application of Soil Binder

Caltrans Requirements

- Are temporary and may require reapplication
- Soil type will dictate which kind of soil binder to use
- Must be environmentally benign, and shall not stain paved or painted surfaces
- Do not apply during or immediately before a rainfall

BMP Installation - Soil Stabilization SS-6 Straw Mulch



Effective Combination of Erosion and Sediment Control

Caltrans Requirements

- Apply straw at a minimum of 2 tons per acre or as per Special Provisions
- A tackifier (glue) is the preferred method of anchoring straw
- Straw needs to last long enough to achieve erosion control objective

BMP Installation - Soil Stabilization

Lack of soil stabilization

BMP Installation - Soil Stabilization SS-7 Geotextiles, Plastic Covers, EC Blankets/Mats

Erosion Control Blankets

Caltrans Requirements

- Used when disturbed soil may be difficult to stabilize
- Materials selected by the contractor must be approved by the RE
- Blankets and mats must be removed and disposed of prior to application of permanent soil stabilization

BMP Installation – Soil Stabilization SS-9 Earth Dikes/Drainage Swales/Lined Ditches

Caltrans Requirements

- Conveyances shall be stabilized
- Not suitable for trapping sediment
- Do not divert runoff onto other property

BMP Installation – Soil Stabilization SS-9 Earth Dikes/Drainage Swales/Lined Ditches

- **Collect runoff from deck cure**

Temporary Sediment Control

ID	BMP Name
SC-1	Silt Fence
SC-2	Desilting Basin
SC-3	Sediment Trap
SC-4	Check Dam
SC-5	Fiber Rolls
SC-6	Gravel Bag Berm
SC-7	Street Sweeping and Vacuuming
SC-8	Sandbag Barrier
SC-9	Straw Bale Barrier
SC-10	Storm Drain Inlet Protection

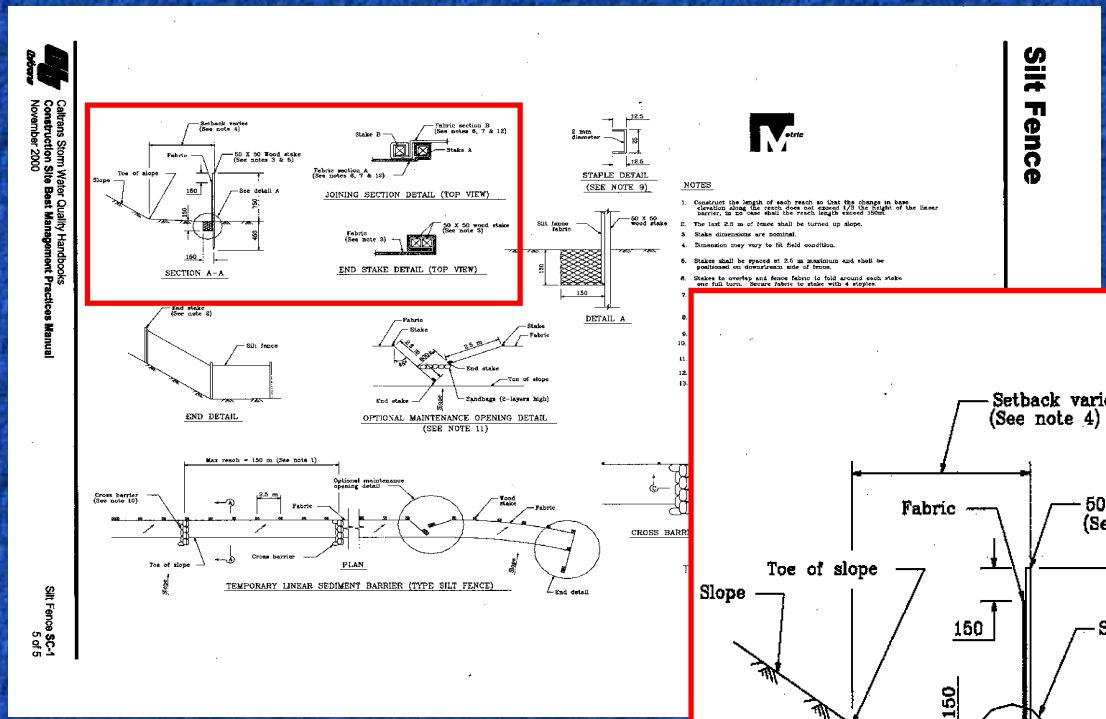
BMP Installation - Sediment Controls SC-1 Silt Fence

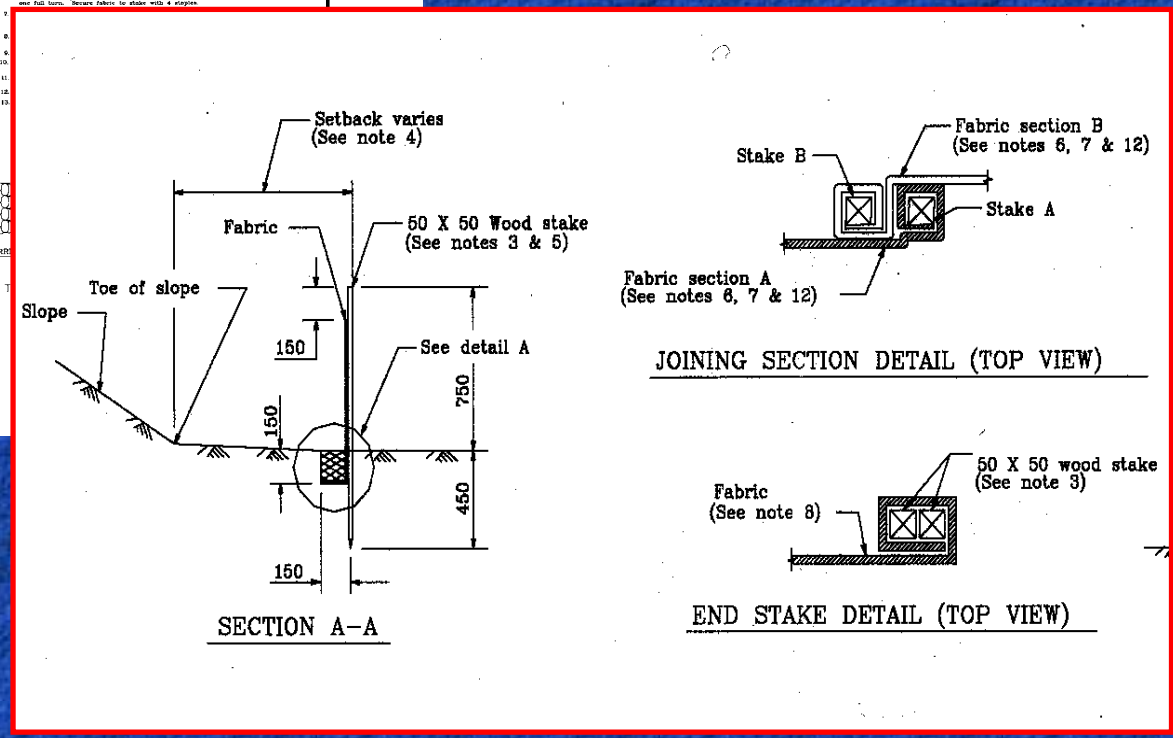
Incorrect installation of silt fence, bottom portion not properly keyed in, improper overlap

Caltrans Requirements

- Not effective unless keyed in
- Locate on level contours
- Don't use in streams, channels or anywhere flow is concentrated
- Locate in areas suitable for ponding and sediment deposition
- Maintain to provide an adequate sediment holding capacity

BMP Installation - Sediment Controls SC-1 Silt Fence





BMP Installation - Sediment Controls SC-1 Silt Fence, SS-6 Straw Mulch

Correct installation of silt fence on a slope stabilized with Straw Mulch

Straw Mulch application

BMP Installation - Sediment Controls

Sediment Controls plus Soil Stabilization
= An effective combination

BMP Installation - Sediment Controls

Lack of sediment control

BMP Installation - Sediment Controls
SC-3 Sediment Trap

Sediment Trap

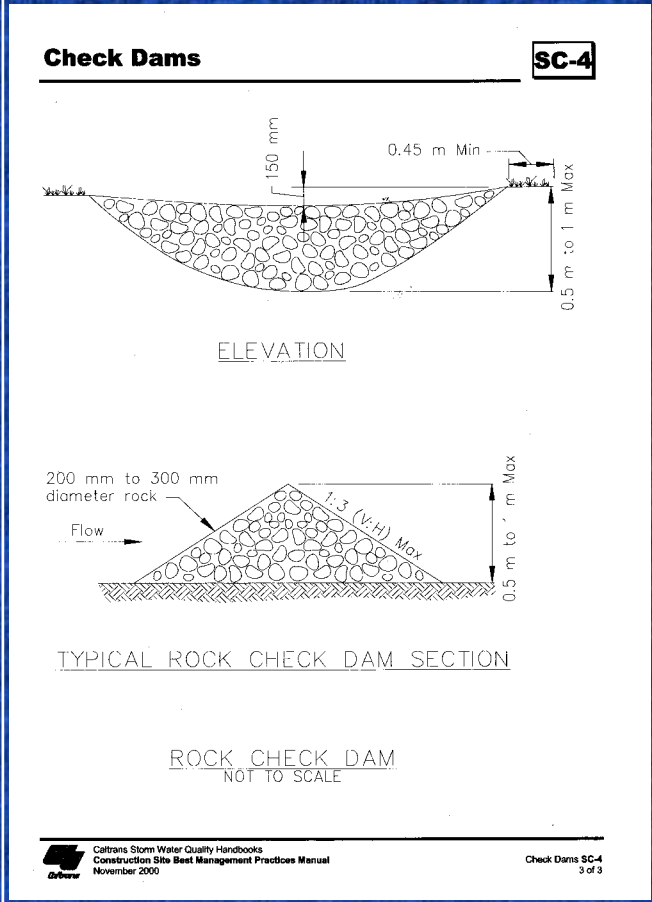
Requirements

- Size limited by availability of right-of-way
- Not appropriate for drainage areas greater than 5ac
- Length of basin must be three times the width
- Safety fencing may be required

BMP Installation - Sediment Controls
SC-4 Check Dams

Caltrans Requirements

- Don't use in live streams or channels
- Not to be constructed from straw bales or a silt fence
- High flows shall safely flow over check dam without upstream flooding or damage to check dam
- Backwater from downstream check dam shall reach toe of upstream dam



BMP Installation - Sediment Controls
SC-5 Fiber Rolls

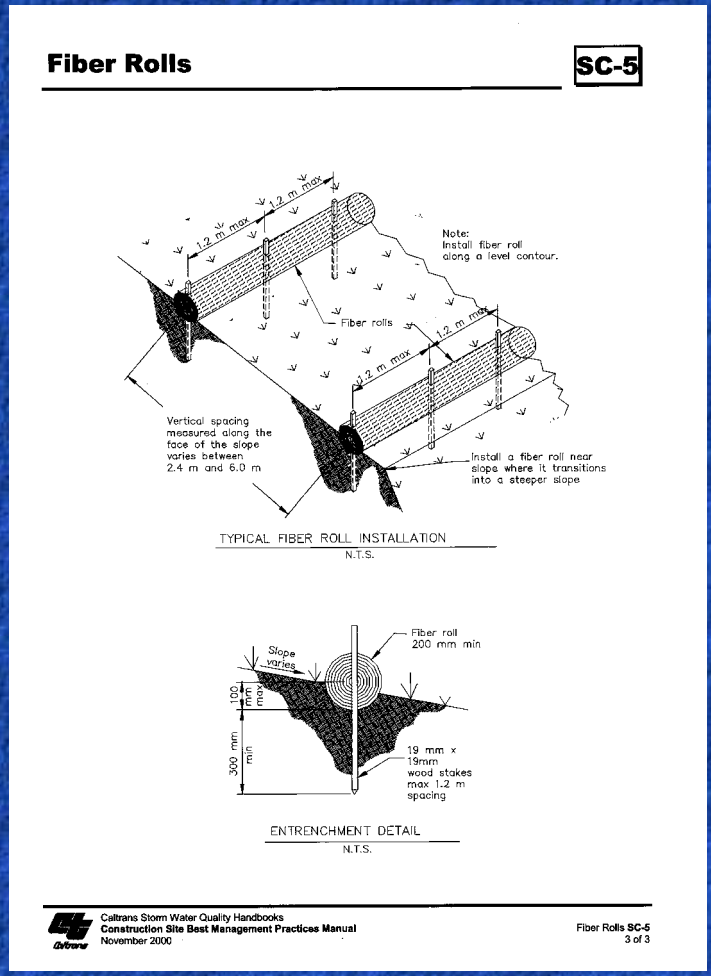
Incorrect installation of fiber rolls; too far apart, not trenched in

Caltrans Requirements

- Use along the top, face, and at grade breaks of exposed and erodible slopes
- Locate on level contours
- Do not use in place of a sediment barrier
- Must be trenched in

BMP Installation - SedimentControls
SC-5 Fiber Rolls

Correct installation of fiber rolls



Fiber Rolls SC-5

TYPICAL FIBER ROLL INSTALLATION
N.T.S.

ENTRENCHMENT DETAIL
N.T.S.

BMP Installation - Sediment Control SC-7 Street Sweeping and Vacuuming

Street sweeping and vacuuming

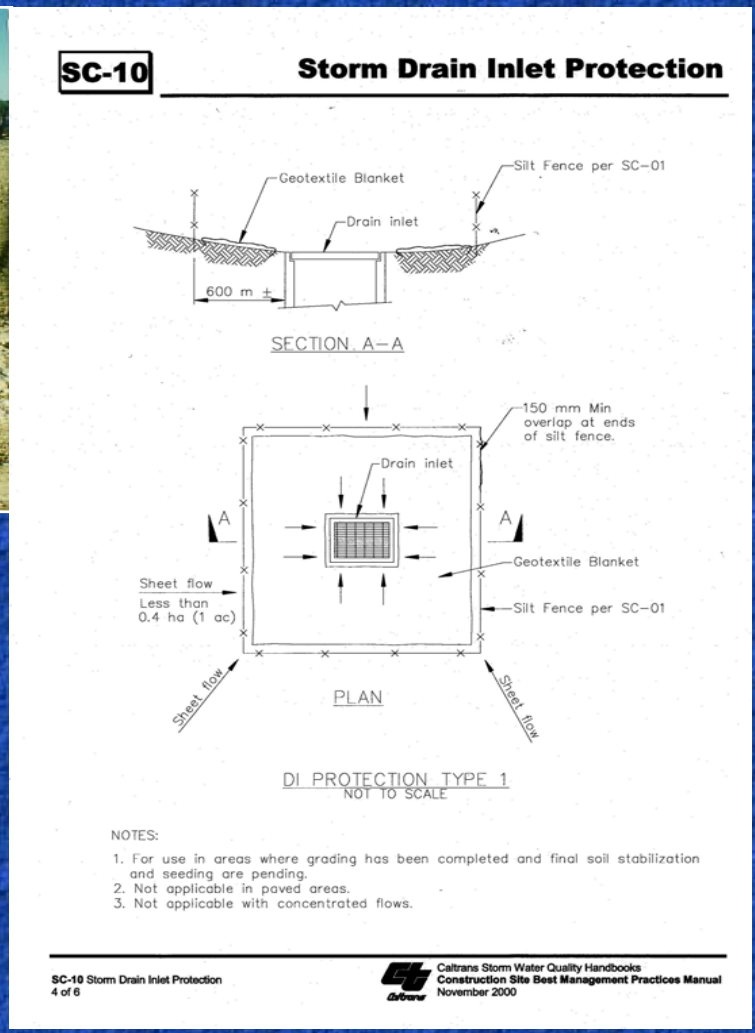
Caltrans Requirements

- Do not use kick brooms or sweeper attachments
- Visible sediment tracking shall be swept and vacuumed daily
- Dispose of sweeper waste at an approved dumpsite

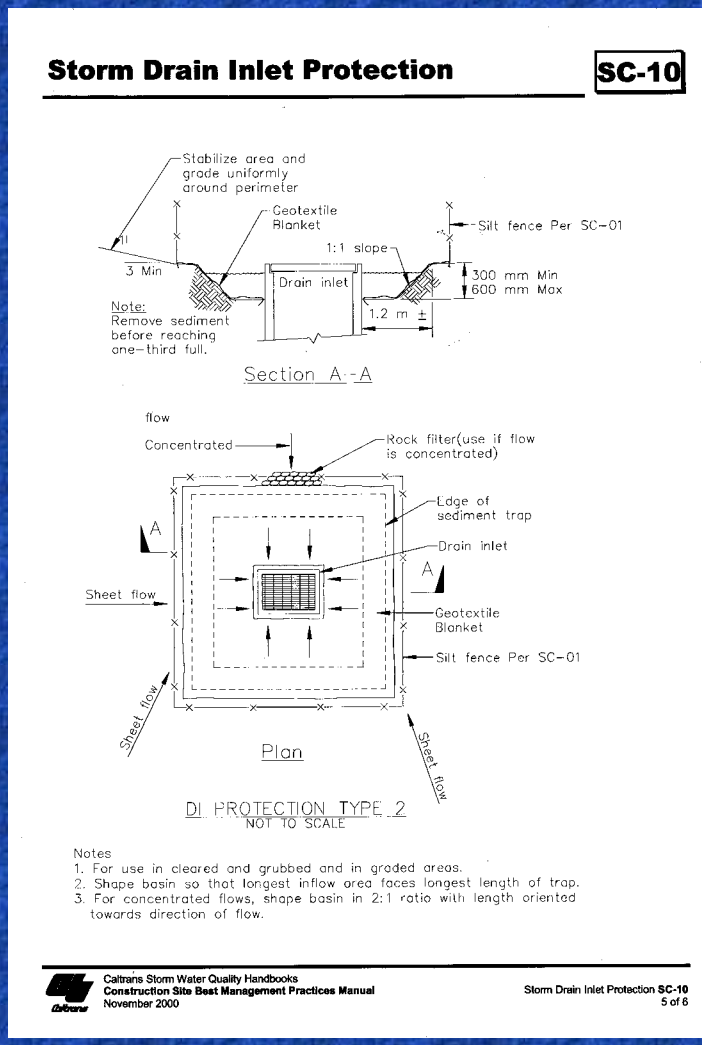
BMP Installation - Sediment Controls
SC-10 Storm Drain Inlet Protection

Caltrans Requirements

- Use where ponding will not encroach into highway traffic
- For use in areas where grading is complete
- Not for concentrated flows



BMP Installation - Sediment Controls
SC-10 Storm Drain Inlet Protection



Storm Drain Inlet Protection **SC-10**

Section A-A

Plan

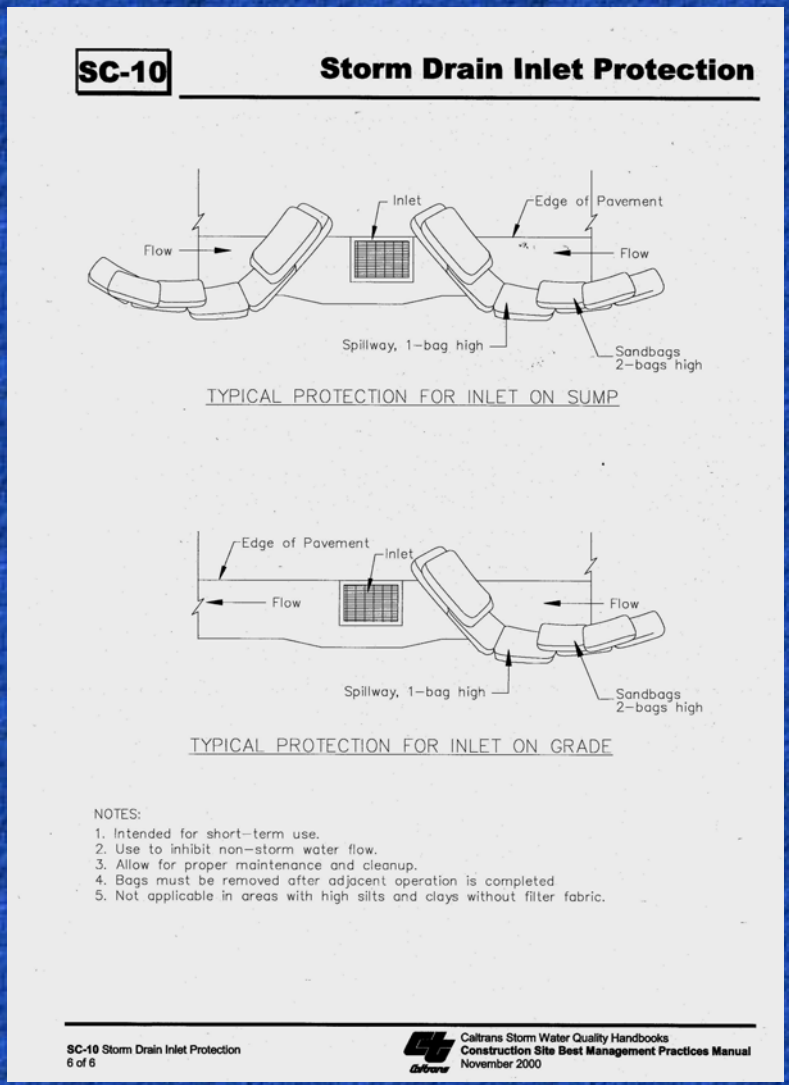
DI PROTECTION TYPE 2
NOT TO SCALE

Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.

Caltrans Requirements

- Use where ponding will not encroach into highway traffic
- For use in cleared / grubbed and graded areas
- Frequent maintenance is required

BMP Installation - Sediment Controls
SC-10 Storm Drain Inlet Protection



SC-10 **Storm Drain Inlet Protection**

TYPICAL PROTECTION FOR INLET ON SUMP

TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

Caltrans Requirements

- Use where ponding will not encroach into highway traffic
- Intended for short-term use
- Remove when adjacent operation is complete

Wind Erosion Control

ID	BMP Name
WE-1	Wind Erosion Control

BMP Installation - Wind Erosion Control WE-1

Lack of wind erosion controls

BMP Installation - Wind Erosion Control WE-1

Soil binder applied via water truck

Caltrans Requirements

- Effectiveness depends on soil, temperature, humidity and wind velocity
- Temporary soil stabilizers and soil binders will also provide wind erosion control benefits

Tracking Control

ID	BMP Name
TC-1	Stabilized Construction Entrance/Exit
TC-2	Stabilized Construction Roadway
TC-3	Entrance/Outlet Tire Wash

BMP Installation - Tracking Control TC-1 Stabilized Construction Entrance / Exit

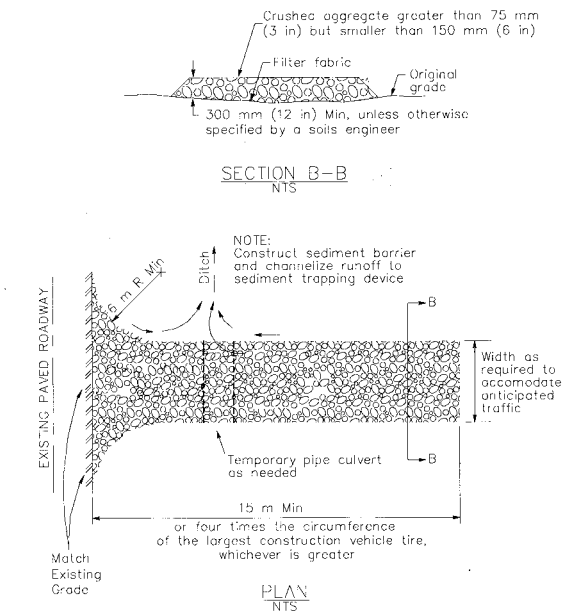
Lack of stabilized entrance / exit

BMP Installation - Tracking Control TC-1 Stabilized Construction Entrance / Exit

Lack of stabilized entrance / exit

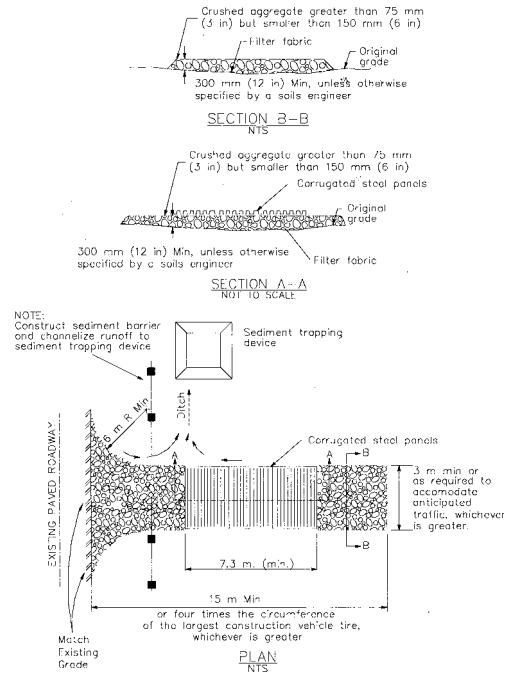
BMP Installation - Tracking Control TC-1 Stabilized Construction Entrance / Exit

Stabilized Construction Entrance/Exit **TC-1**



Stabilized Construction Entrance/Exit (Type 1)

TC-1 **Stabilized Construction Entrance/Exit**



Stabilized Construction Entrance/Exit (Type 2)

BMP Installation - Tracking Control TC-1 Stabilized Construction Entrance / Exit

Large diameter rock used as a stabilized entrance / exit.

Caltrans Requirements

- If aggregate is used place over geotextile fabric 12” deep
- Use 3”-6” diameter rock
- Minimum of 15 m in length
- Design for heaviest equipment
- Limit number of entrances and exits
- Require their use

Non-Storm Water Management BMPs

ID	BMP Name
NS-1	Water Conservation Practices
NS-2	Dewatering Operations
NS-3	Paving and Grinding Operations
NS-4	Temporary Stream Crossing
NS-5	Clear Water Diversion
NS-6	Illicit Connection / Illegal Discharge Detection and Reporting
NS-7	Potable Water / Irrigation
NS-8	Vehicle and Equipment Cleaning
NS-9	Vehicle and Equipment Fueling
NS-10	Vehicle and Equipment Maintenance

BMP Installation - Non-Storm Water NS-2 Dewatering Operations

Caltrans Requirements

- Notify District Construction Storm Water Coordinator
- Use where groundwater or accumulated precipitation will be discharged from site
- Addresses sediment only
- Notify RE if pollutant other than sediment is present
- Must comply with applicable permits

BMP Installation - Non-Storm Water NS-3 Paving and Grinding Operations

Caltrans Requirements

- Place drip pans under paving equipment when not in use
- Substances used to coat asphalt equipment shall not contain soap, will be non-foaming and non-toxic
- Clean equipment off-site whenever possible

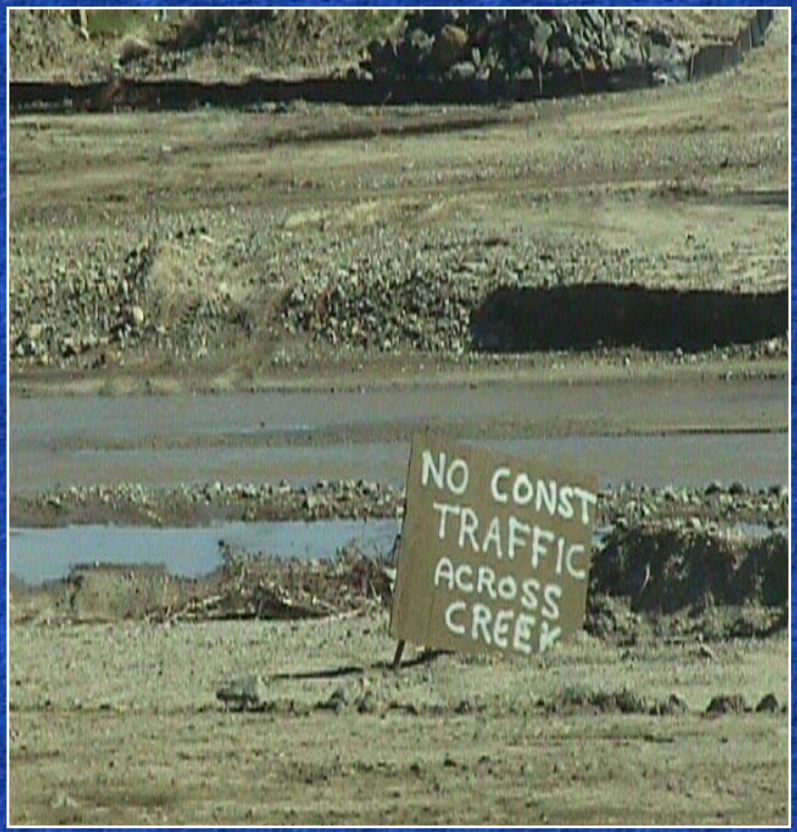
BMP Installation – Non-Storm Water NS-4 Temporary Stream Crossing

Caltrans Requirements

- Use where construction equipment must frequently cross a waterway
- If improperly designed they may increase pollution load through washouts and scouring
- May require RWQCB, USACE, DFG permits / approval

Falsework Construction

BMP Installation – Non-Storm Water NS-4 Temporary Stream Crossing



BMP Installation – Non-Storm Water NS-5 Clear Water Diversion

Caltrans Requirements

- May require RWQCB, USACE, DFG permits / approval
- If improperly designed they may increase pollution load through washouts and scouring
- Construct diversions with material free of potential pollutants

BMP Installation – Non-Storm Water NS-6 Illicit Connection / Illegal Discharge

Caltrans Requirements

- Can be in liquid or solid form
- Refers to discharges and dumping caused by parties other than contractor
- Inspect site before beginning of job
- Proceed with caution – notify RE at time of discovery

BMP Installation - Non-Storm Water NS-9 Vehicle and Equipment Fueling

Caltrans Requirements

- Fuel on site only when impractical to go off site
- Use a designated area
- Clean up materials and spill kits available
- Protect fueling area from run-on and run-off

Mobile fueling operations require BMPs

BMP Installation - Non-Storm Water NS-9 Vehicle and Equipment Fueling

Pile Driving Operations

Waste Management and Material Pollution Control BMPs

ID	BMP Name
WM-1	Material Delivery and Storage
WM-2	Material Use
WM-3	Stockpile Management
WM-4	Spill Prevention and Control
WM-5	Solid Waste Management
WM-6	Hazardous Waste Management
WM-7	Contaminated Soil Management
WM-8	Concrete Waste Management
WM-9	Sanitary / Septic Waste Management
WM-10	Liquid Waste Management

BMP Installation - Waste Management WM-1 Material Delivery and Storage

Well maintained temporary containment facility

Substances that require storage in a containment facility

Caltrans Requirements

- Spill containment volume shall be equal to 1.5 times volume of all containers and be impervious to the materials for 72 hours
- Substances listed in 40 CFR Parts 110, 117, and 302 require containment
- Provide cover during non-working days and prior to rain events

BMP Installation - Waste Management WM-1 Material Delivery and Storage

Temporary containment facility for fuel

BMP Installation - Waste Management WM-1 Material Delivery and Storage

- **Cure requires proper storage**

BMP Installation - Waste Management WM-3 Stockpile Management

Caltrans Requirements

- Year-round requirement
- Locate away from concentrated flows of storm water
- Protect from run-on

BMP Installation – Waste Management WM-5 Solid Waste Management

Caltrans Requirements

- Solid waste includes litter generated by the public
- Dumpsters of sufficient size and number shall be provided
- Segregate potentially hazardous waste from non-hazardous waste

BMP Installation - Waste Management WM-8 Concrete Waste Management

Concrete washout

Uncontrolled concrete washouts

BMP Installation - Waste Management WM-8 Concrete Waste Management

Below Grade concrete washout

Above Grade concrete washout

Caltrans Requirements

- PCC and AC waste shall not be allowed to enter storm drains and watercourses
- Install signs designating temporary washout areas
- Locate washout facilities a minimum of 15m(50ft) from storm drains, water courses

BMP Installation - Waste Management
WM-9 Sanitary / Septic Waste Management

Locate temporary sanitary facilities away from drainage facilities

Caltrans Requirements

- Locate sanitary facilities away from storm drains, water courses
- Secure if subject to high wind
- Contractor to monitor weekly

BMP Installation - Waste Management
WM-10 Liquid Waste Management

Tie Back wall construction

Caltrans Requirements

- Liquid waste cannot enter storm drain, receiving water or waterway
- Disposal of certain liquid waste may be subject to specific laws or regulations

Who Wants To Be A Millionaire?

Millionaire Review Question #1

The letters BMP are also known as?

a) Best Materials Practical

b) Big Major Problem

c) Best Method Practice

d) Best Management Practice

Millionaire Review Question #2

Which one of the six BMP categories found in the BMP Manual, includes Scheduling?

a) Soil Stabilization

b) Non-Storm Water Management

c) Sediment Control

d) Tracking Control

Millionaire Review Question #3

Which one of the following is <u>not</u> a Soil Stabilization BMP?

a) Hydraulic Mulch

b) Slope Drains

c) Earth Dikes

d) Desilting Basin

Millionaire Review Question #4

What is the Caltrans minimum required application rate for straw mulch?

a) 2 hectares per acre

b) 2 tons per hectare

c) 20 acres per ton

d) 2 tons per acre

Millionaire Review Question #5

"Keying in the bottom" is an installation requirement of which BMP?

a) Gravel Bag Berms

b) Grocery Bag Berms

c) Silt Fence

d) Geotextiles / Plastic Covers

Millionaire Review Question #6

What is a common way for construction sites to achieve/maintain the rainy season DSA requirement?

a) Apply temporary SC regularly

b) Apply temporary EC regularly

c) Install both silt fence and straw bales

d) Apply permanent SC controls asap

Construction Site Best Management Practices

- **Course Highlights**
  - Introduction
  - The Law
  - Recent Fines
  - Permits, Specs and Manuals
  - **Construction Site BMPs**
  - Inspection Procedures
  - Communication
  - Documentation

Maintenance of BMPs

Maintenance of BMPs is a critical requirement for an effective water pollution control program

Maintenance of BMPs

Silt fence maintenance

Improperly Implemented BMPs

Silt fence installed incorrectly in a concentrated flow area

Improperly Implemented BMPs

Silt fence installed incorrectly in a unstabilized concentrated flow area

Improperly Implemented BMPs

Sandbags blocking a DI, and causing a safety hazard

Improperly Implemented BMPs

Sandbags blocking a DI, and causing a safety hazard

Improperly Implemented BMPs

Uncontrolled concrete washout near an active DI

Improperly Implemented BMPs

Improperly Implemented BMPs

Possible solution: Block other entrance / exit

Improperly Implemented BMPs

Incorrect use of silt fence

Improperly Implemented BMPs

Lack of soil stabilization has lead to failure of silt fence

Improperly Implemented BMPs

Stockpile should be relocated, covered and protected from run-on